

What is claimed is:

1. A rotary pilot valve comprising:

a notch groove formed in a peripheral face of a rotary valve;

a tank port, a pump port, and an output port formed in an inner peripheral face of a body;

a pair of variable throttles respectively formed on a side of the pump port and a side of the tank port of the notch groove; and

an operating lever for operating the rotary valve by rotation,

wherein throttle open areas of the pair of variable throttles are formed in such shapes that the throttle open area of one of the variable throttles gradually increases while the throttle open area of the other gradually reduces according to a rotation angle of the rotary valve by the operating lever, and

wherein an intermediate throttle pressure between the pump port and the tank port and substantially proportional to the rotation angle of the rotary valve is output from the notch groove to the output port.

2. A rotary pilot valve according to claim 1, wherein a pair of notch grooves is formed in pressure balance positions in a diameter direction of the rotary valve,

the pair of notch grooves communicate with each other

through a balance hole,

the variable throttles are formed at the notch groove for communicating between the pump port and the tank port, and

the intermediate throttle pressure is output from the notch groove to the output port.

3. A rotary pilot valve according to claim 2, wherein two sets each including the tank port, the output port and the pump port respectively disposed in positions along normal and reverse rotating directions of the rotary valve around the tank port are formed, and

the intermediate throttle pressure between the pump port and the tank port in one of the sets is output to the output port of a same set by normal and reverse rotations of the rotary valve by the operating lever.

4. A rotary pilot valve according to claim 3, wherein two pairs of notch grooves are formed in positions separate from each other along a direction of a rotation axis of the rotary valve, and

the tank ports, the output ports, and the pump ports of the respective sets are disposed in positions corresponding to the respective pairs of notch grooves separate from each other.

5. A rotary pilot valve according to claim 1, further comprising an automatic return mechanism with which the operating lever is automatically returned to an initial position where tilting starts.

6. A rotary pilot valve according to claim 2, further comprising an automatic return mechanism with which the operating lever is automatically returned to an initial position where tilting starts.

7. A rotary pilot valve according to claim 3, further comprising an automatic return mechanism with which the operating lever is automatically returned to an initial position where tilting starts.

8. A rotary pilot valve according to claim 4, further comprising an automatic return mechanism with which the operating lever is automatically returned to an initial position where tilting starts.

9. A rotary pilot valve according to claim 1, further comprising a detent mechanism with which the operating lever can be retained in a tilted position.

10. A rotary pilot valve according to claim 2, further comprising a detent mechanism with which the operating lever can be retained in a tilted position.

11. A rotary pilot valve according to claim 3, further comprising a detent mechanism with which the operating lever can be retained in a tilted position.

12. A rotary pilot valve according to claim 4, further comprising a detent mechanism with which the operating lever can be retained in a tilted position.

13. A rotary pilot valve according to claim 7, further

comprising a detent mechanism with which the operating lever can be retained in a tilted position.

14. A rotary pilot valve according to claim 4, wherein the body includes a structure for airtightly housing the rotary valve.

15. A rotary pilot valve according to claim 13, wherein the body includes a structure for airtightly housing the rotary valve.

16. A rotary pilot valve according to claim 4, wherein the rotary valve is a cylindrical valve.

17. A rotary pilot valve according to claim 15, wherein the rotary valve is a cylindrical valve.

18. A rotary pilot valve according to claim 16, wherein a plurality of cylindrical valves are arranged in series along an axial direction of the valves.

19. A rotary pilot valve according to claim 4, wherein the rotary valve is a ball valve.

20. A rotary pilot valve according to claim 4, wherein the rotary valve is a stone-mill-like valve.